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9	BRS	L11	316	10 and 707/1-10.ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TD B

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12	BRS	L14	137	10 and 705/1,64.ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWEN T; IBM_TD B

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Relevance scale **1** Mobile applications: Geo-word centric association rule mining

 Katsumi Takahashi, Iko Pramudiono, Masaru Kitsuregawa
 May 2005 **Proceedings of the 6th international conference on Mobile data management MDM '05**

Publisher: ACM PressFull text available:  [pdf\(1.93 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Association rule mining is a well known data mining technique that also applicable to spatial data. Here we systematically elaborate spatial association rule mining which focusing on the "geo-word" in order to analyze location related preferences of human users. We propose several categories of mining methodologies based on the items in the rule and rule generation process. Novel interestingness metrics are derived out of those mining methodologies to identify location specific characteristics s ...

Keywords: data mining, location-dependent and sensitive, spatial databases and GIS, web mining

**2** A statistical analysis of the long-run node spatial distribution in mobile ad hoc networks

Douglas M. Blough, Giovanni Resta, Paolo Santi
 September 2004 **Wireless Networks**, Volume 10 Issue 5

Publisher: Kluwer Academic PublishersFull text available:  [pdf\(597.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we analyze the node spatial distribution of mobile wireless ad hoc networks. Characterizing this distribution is of fundamental importance in the analysis of many relevant properties of mobile ad hoc networks, such as connectivity, average route length, and network capacity. In particular, we have investigated under what conditions the node spatial distribution resulting after a large number of mobility steps resembles the uniform distribution. This is motivated by the fact tha ...

Keywords: mobile ad hoc networks, mobility modeling, node spatial distribution, random waypoint model

**3** Analysis of Ad Hoc Networks: A statistical analysis of the long-run node spatial distribution in mobile ad hoc networks

 Douglas M. Blough, Giovanni Resta, Paolo Santi
 September 2002 **Proceedings of the 5th ACM international workshop on Modeling analysis and simulation of wireless and mobile systems MSWiM '02**

Publisher: ACM Press

Full text available: [!\[\]\(3d8c13c92b853674f749aac6fa869926_img.jpg\) pdf\(644.59 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we analyze the node spatial distribution of mobile wireless ad hoc networks. Characterizing this distribution is of fundamental importance in the analysis of many relevant properties of mobile ad hoc networks, such as connectivity, average route length, and network capacity. In particular, we have investigated under what conditions the node spatial distribution resulting after a large number of mobility steps resembles the uniform distribution. This is motivated by the fact that t ...

Keywords: Brownian-like motion, mobility modeling, node spatial distribution, random waypoint motion, wireless ad hoc networks

4 **Sense'n respond solutions: A rule-based system for sense-and-respond telematics services**

Jonathan Munson, SangWoo Lee, DaeRyung Lee, David Wood, Gerry Thompson, Alan Cole
June 2005 **Proceedings of the 2005 workshop on End-to-end, sense-and-respond systems, applications and services EESR '05**

Publisher: USENIX Association

Full text available: [!\[\]\(f95dab70c751fda7d824b8b03650f7aa_img.jpg\) pdf\(241.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We introduce a telematics-oriented event detection service, and programming framework supporting it, that enables application developers to more easily develop applications based on the sense-and-respond model. The system provides a rule-based programming model in which the application is partitioned in two parts: (1) a set of rules that operate on low-level position-update events and which, when triggered, produce high-level, application-defined events; and (2) logic that acts on the high-level ...

5 **Anytime, anywhere: modal logics for mobile ambients**

 Luca Cardelli, Andrew D. Gordon
January 2000 **Proceedings of the 27th ACM SIGPLAN-SIGACT symposium on Principles of programming languages POPL '00**

Publisher: ACM Press

Full text available: [!\[\]\(e3f255517d37bb309a3a931ec4849e6a_img.jpg\) pdf\(1.56 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The Ambient Calculus is a process calculus where processes may reside within a hierarchy of locations and modify it. The purpose of the calculus is to study mobility, which is seen as the change of spatial configurations over time. In order to describe properties of mobile computations we devise a modal logic that can talk about space as well as time, and that has the Ambient Calculus as a model.

6 **Fuzzy spatial map representation for mobile robot navigation**

 Eddie Tunstel
February 1995 **Proceedings of the 1995 ACM symposium on Applied computing SAC '95**

Publisher: ACM Press

Full text available: [!\[\]\(9a795c4c0c43d0827b424565265fc8e6_img.jpg\) pdf\(495.68 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: fuzzy logic map representation, robot navigation

7 **Moving objects: Preserving mobile customer privacy: an access control system for moving objects and customer profiles**

 Mahmoud Youssef, Vijayalakshmi Atluri, Nabil R. Adam
May 2005 **Proceedings of the 6th international conference on Mobile data**

management MDM '05**Publisher:** ACM PressFull text available: [pdf\(230.89 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A key challenge for Mobile services is to offer personalized contents while preserving the privacy of customers. In mobile applications, location information is modeled as moving objects. Providing proper protection to customer information can be achieved by an access control system. However, providing such system is a challenging task due to: 1) the spatio-temporal nature of the constraints as well as the location information, and the interaction among them; 2) the complexity of resolving spati ...

Keywords: access control, customer profiles, mobile, moving objects, privacy

8 Battleship by foot: learning by designing a mixed reality game

Nicola J Bidwell, Jason Holdsworth

December 2006 **Proceedings of the 3rd Australasian conference on Interactive entertainment IE '06****Publisher:** Murdoch UniversityFull text available: [pdf\(544.04 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We reflect upon a novel set of pedagogical methods to innovate a mixed-reality Location-Based-Game (LBG). Undergraduate students in two 2nd and 3rd year IT subjects designed, specified and coded a Battleship LBG. This required them to consider physical and cognitive play experiences in figural and physical design spaces and address emergent properties of ubiquitous contexts. Our methods reconciled physical methods and enacted knowledge with traditional systematized design ...

Keywords: mixed reality location-based game, teaching design

9 Special issue on Mobile Data Management: Reactive maintenance of continuous queries

Goce Trajcevski, Peter Scheuermann

July 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8 Issue 3**Publisher:** ACM PressFull text available: [pdf\(351.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This work addresses the problem of maintaining the consistency of the answers to continuous queries which are posed by the users of the Moving Objects Databases (MOD). Assuming that the motion of the object is represented by a trajectory, we focus on the effect that the modifications to the trajectory data can have on the queries answer-set. In case a mobile user enters a road section in which an accident has occurred, which was not anticipated in the "expected" traffic behavior, not only his ...

10 A modal logic for mobile agents

Rocco De Nicola, Michele Loreti

January 2004 **ACM Transactions on Computational Logic (TOCL)**, Volume 5 Issue 1**Publisher:** ACM PressFull text available: [pdf\(338.36 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Klaim is an experimental programming language that supports a programming paradigm where both processes and data can be moved across different computing environments. The language relies on the use of explicit localities. This paper presents a temporal logic for specifying properties of Klaim programs. The logic is inspired by Hennessy-Milner Logic (HML) and the μ -calculus, but has novel features that permit dealing with state properties and impact of actions and movements over the different ...

Keywords: Coordination Models, Logics, Mobile Code Languages, Mobility, Proof

Systems, Temporal Logics of Programs

11 Near-optimality of distributed load-adaptive dynamic channel allocation strategies for cellular mobile networks

Andrea Biloocchi, Fabrizio Sestini

June 1996 **Wireless Networks**, Volume 2 Issue 2**Publisher:** Kluwer Academic PublishersFull text available: [pdf\(1.47 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper we focus on the so-called load-adaptive Dynamic Channel Allocation (DCA) strategies for cellular mobile networks. Such strategies envisage the dynamic assignment of radio resources with the constraint that the outage probability (i.e. the probability that the carrier-to-interference power ratio be less than a given threshold) be less than a specified value, even in the worst foreseen propagation scenario. We identify a set of constraints to be satisfied in order that a DCA str ...

12 Ontology and application to improve dynamic bindings in mobile distributed systems

Ben Falchuk, Dave Marples

August 2006 **Proceedings of the 2nd annual international workshop on Wireless internet WICON '06****Publisher:** ACM PressFull text available: [pdf\(302.30 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

In mobile, component-based, distributed systems, computing environments utilize software components on an ad hoc, as-needed basis. In such systems, software components must register and announce not only their presence but also their functionality while client components must express their needs for these other components. The binding machinery should intelligently match clients to candidates. Finally, human users of high-level services -- whose underlying components are invisibly involved in ...

Keywords: application platforms and middleware, applications and services for mobile users, component based systems, ontology

13 Realms and states: a framework for location aware mobile computing

Ajith K. Narayanan

July 2001 **Proceedings of the 1st international workshop on Mobile commerce WMC '01****Publisher:** ACM PressFull text available: [pdf\(548.46 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Location awareness is an important part of context-aware mobile computing. We present the idea of logical location contexts which provides enhanced privacy and supports specialized notions of distance, and offers a paradigm that unifies location with other types of context. This is developed in the form of a framework consisting of realms, which are collections of spatial states, with realm-maps providing mappings between realms. The lowest realm relies on raw (physical) location. Multiple ar ...

Keywords: context aware, context service, location aware, location privacy, location service, mobile computing, realms

14 Web community mining and web log mining: commodity cluster based execution

Masaru Kitsuregawa, Masashi Toyoda, Iko Pramudiono

January 2002 **Australian Computer Science Communications , Proceedings of the 13th Australasian database conference - Volume 5 ADC '02**, Volume 24 Issue 2**Publisher:** Australian Computer Society, Inc., IEEE Computer Society Press

Full text available: [pdf\(801.13 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The emergence of WWW has drawn new frontiers for database research. Web mining has become a hot topic since WWW rapid expansion rate and chaotic nature have exposed some technical challenges as well as interesting discoveries. In general web mining can be classified into web structure mining and web usage mining. Here we introduce two applications of web mining, first from mining the web structure we identify web communities, and the second we mine web usage of mobile internet users on location ...

Keywords: PC cluster, parallel mining, web community, web mining

15 Location-aware mobile applications based on directory services

 Henning Maaß

September 1997 **Proceedings of the 3rd annual ACM/IEEE international conference on Mobile computing and networking MobiCom '97**

Publisher: ACM Press

Full text available: [pdf\(1.59 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



Keywords: LDAP, X.500, adaptive applications, directory services, distributed systems, locating systems, location-aware applications, middleware, mobile computing, software architectures, wireless multimedia networks

16 Systems and applications: An airport decision support system for mobiles

 surveillance & alerting

Gabriel Pestana, Miguel Mira da Silva, Augusto Casaca, João Nunes

June 2005 **Proceedings of the 4th ACM international workshop on Data engineering for wireless and mobile access MobiDE '05**

Publisher: ACM Press

Full text available: [pdf\(449.00 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



The improvement of safety on airport surface movements requires an integrated management of the entire airport, which is hard because usually that management is performed independently. This scenario sometimes compromises the overall efficiency of airport operations. The continuous increase of airport traffic has also lead to an escalating number of accidents and incidents on airport surface movements. In case of crisis situations, airport operators involved in the decision-making process have a ...

Keywords: Wi-Fi, geographical information systems, location-based services database, spatial decision support, spatial management system, traffic control

17 GEO-RBAC: A spatially aware RBAC

 Maria Luisa Damiani, Elisa Bertino, Barbara Catania, Paolo Perlasca

February 2007 **ACM Transactions on Information and System Security (TISSEC)**, Volume 10 Issue 1

Publisher: ACM Press

Full text available: [pdf\(780.84 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



Securing access to data in location-based services and mobile applications requires the definition of spatially aware access-control systems. Even if some approaches have already been proposed either in the context of geographic database systems or context-aware applications, a comprehensive framework, general and flexible enough to deal with spatial aspects in real mobile applications, is still missing. In this paper, we make one step toward this direction and present GEO-RBAC, an extension ...

Keywords: GIS, access-control model, location-based services

18 Topology control in wireless ad hoc and sensor networks Paolo SantiJune 2005 **ACM Computing Surveys (CSUR)**, Volume 37 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(348.38 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Topology Control (TC) is one of the most important techniques used in wireless ad hoc and sensor networks to reduce energy consumption (which is essential to extend the network operational time) and radio interference (with a positive effect on the network traffic carrying capacity). The goal of this technique is to control the topology of the graph representing the communication links between network nodes with the purpose of maintaining some global graph property (e.g., connectivity), while re ...

Keywords: Connectivity, energy consumption, sensor networks, topology control, wireless ad hoc networks

19 Brave new topics - session 2: from context to content: leveraging contextual metadata to infer multimedia content: From context to content: leveraging context to infer media metadata Marc Davis, Simon King, Nathan Good, Risto SarvasOctober 2004 **Proceedings of the 12th annual ACM international conference on Multimedia MULTIMEDIA '04**

Publisher: ACM Press

Full text available:  [pdf\(373.07 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The recent popularity of mobile camera phones allows for new opportunities to gather important metadata at the point of capture. This paper describes a method for generating metadata for photos using spatial, temporal, and social context. We describe a system we implemented for inferring location information for pictures taken with camera phones and its performance evaluation. We propose that leveraging contextual metadata at the point of capture can address the problems of the semantic and s ...

Keywords: content-based image retrieval, context-to-content inference, contextual metadata, location-based services, mobile camera phones, wireless multimedia applications

20 Access control model I: GEO-RBAC: a spatially aware RBAC Elisa Bertino, Barbara Catania, Maria Luisa Damiani, Paolo PerlascaJune 2005 **Proceedings of the tenth ACM symposium on Access control models and technologies SACMAT '05**

Publisher: ACM Press

Full text available:  [pdf\(142.96 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Securing access to data in location-based services and mobile applications requires the definition of spatially aware access control systems. Even if some approaches have already been proposed either in the context of geographic database systems or context-aware applications, a comprehensive framework, general and flexible enough to cope with spatial aspects in real mobile applications, is still missing. In this paper, we make one step towards this direction and we present GEO-RBAC, an extension ...

Keywords: GIS, access control, authorization model, location-based services

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